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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,784	10/17/2003	Gaurav Singh	RMI1P040/RZMI-P0310-US	9860

76265 7590 04/15/2009

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EXAMINER	
ANDREWS, LEON T	

ART UNIT	PAPER NUMBER
2416	

MAIL DATE	DELIVERY MODE
04/15/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/687,784	SINGH ET AL.	
	Examiner	**Art Unit**	
	LEON ANDREWS	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _15 January 2009_.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1,2,4-9,11,14-18,21 and 23-29_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-2, 4-9, 11, 14-18, 21 and 23-29_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. **Claims 1-2, 4-9, 11, 14-18, 21 and 23-29** are being rejected under 35 U.S.C. 103(a) as being unpatentable over Wong (Pub. No.: 2004/0264464 A1 using Provisional application No.: 60/482,759) in view of Tang et al. (Patent No.: US 6,553,028 B1).

Regarding Claim 1, Wong discloses a multicast packet duplication system for multicast packets (Internet Protocol Multicast (IPMC) packet duplication covers tables required to implement the MMU and egress module, page 3, lines 2-4) containing at least multicast address data (multicast packet is replaced with source MAC address, page 3, lines 14-15), comprising:

an input port (Block Diagram, CPI ingress bus, page STN-2) configured to receive a packet (IPMC packet, page 5, line 21); and

a plurality of output ports (Fig. 2, multicast packet generated and routed to RCVs 204-210 by way of router 250, column 8, lines 64-65; ports of the egress VLAN that receive the frame, column 14, lines 30-31) configured to output the packet, wherein:

a number of duplications of the packet for each of the plurality of output ports is controlled by descriptors (replication engine includes the pointer and index where the index (descriptor) enables the replication engine to perform multicast packet replication, further specifies the port with the incoming (ingress) VLAN and rewrites the frame (hashing) destined to ports on the VLAN (output ports) other than the ingress VLAN, column 14, lines 4-15) by a hashing function (each multicast entry accessed by IP source address, IP destination address and the VLAN ID are hashed using a hash algorithm, column 12, lines 59-62) applied to said multicast address data;

wherein an encoding format (replication for the frame, column 14, lines 42-43) of the descriptors include at least one of:

a contiguous range encoding that includes a starting indicator and an ending indicator (replication process for each outgoing VLAN starts from the pointer 750 (starting indicator) until an entry having an asserted control bit (ending indicator) specifies the termination of the replication for the frame, column 14, lines 37-43); or

a non-contiguous range encoding that includes a most significant bit (MSB) portion of an indicator and a bitmap decoded from a least significant bit (LSB) portion of the indicator;

and

a discrete encoding that includes a first indicator and a second indicator,

wherein: the encoding format is configured to be selected in response to control bits (an entry having an asserted control bit specifies the termination of the replication for the frame, then the replication process for each VLAN starts from the pointer 750, column 14, lines 37-43).

Wong teaches the limitations of the claims including multicast packet duplicating system.

But, Wong fails to specifically teach plurality of output ports, hashing function and continuous range that includes starting/ending indicators.

However, Tang et al. teaches Fig. 2, multicast packet generated and routed to RCVs 204-210 by way of router 250, column 8, lines 64-65; each multicast entry accessed by IP source address, IP destination address and the VLAN ID are hashed using a hash algorithm, column 12, lines 59-62), and replication process for each outgoing VLAN starts from the pointer 750

(starting indicator) until an entry having an asserted control bit (ending indicator) specifies the termination of the replication for the frame, column 14, lines 37-43.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Tang et al.'s plurality of output ports, hashing function and continuous range that includes a starting/ending indicators because this would have allowed the switch to forward the routed multicast packet/frames to the RCVs 206-210 coupled to its ports, column 9, lines 9-11.

Regarding Claims 2 and 14, **Wong** discloses the packet duplication system and method (IPMC Replication steps, page STN-13), wherein: each of the number of duplications is coupled to a Virtual Local Area Network (VLAN) (IPM packet replication per VLAN, page STN-10, line 8).

Regarding Claims 4 and 15, **Wong** discloses the packet duplication system and method, wherein: the VLAN pointer descriptors arranged in the linked-list table include at least one shared descriptor (IPMC Replication, Head_Pointer and the Next_Pointer used as index to the LS table, step 5, STN-13).

Regarding Claim 5, Wong discloses the packet duplication system of claim 1, further comprising: a pointer table (ECMP Support, L3 Interface Table, page STN-7) having a width comprising a plurality of entries (column of 8 entries in the L3 table, ECMP Dest_Ip Search, step 7, page STN-8) coupled to the linked-list table.

Regarding Claim 6, Wong discloses the packet duplication system of claim 5, wherein: each of the plurality of entries (column of 8 entries in the L3 table, ECMP Dest_Ip Search, step 7, page STN-8) corresponds to one of the plurality of output ports (Block Diagram, CPE egress bus, page STN-2).

Regarding Claims 7 and 16, **Wong** discloses the packet duplication system and method, wherein: the contiguous range encoding includes a starting Virtual Local Area Network (VLAN) indicator (IPMC Replication, VLAN_ID1, step 9, page STN-13) and an ending VLAN indicator (IPMC Replication, VLAN_ID2, step 12, page STN-13).

Regarding Claims 8 and 17, **Wong** discloses the packet duplication system and method, wherein: the non-contiguous range encoding includes a most significant bit (MSB) portion (IPMC Replication, 64-bit vector for specifying the MS (Most Significant) 6 bits of VLAN_ID, page STN-11, lines 11-12) of a Virtual Local Area Network (VLAN) indicator (IPMC Replication, VLAN_ID, page STN-11) and a bitmap (ECMP Dest_Ip Search, step 7, LPM table get 12-bit L3_table_index with 3-bit count field, page STN-8) decoded from a least significant bit (LSB) portion (ECMP Dest_Ip Search, step 8, index points to the first entry of column of 8-entries in the L3 table, page STN-8) of the VLAN indicator.

Regarding Claims 9 and 18, **Wong** discloses the packet duplication system and method, wherein: the discrete encoding includes a first Virtual Local Area Network (VLAN) indicator (IPMC Replication, VLAN_ID1, step 9, page STN-13) and a second VLAN indicator (IPMC

Replication, VLAN_ID2, step 12, page STN-13).

Regarding Claims 10 and 19, **Wong** discloses the packet duplication system and method, wherein: the encoding format is configured to be selected in response to control bits (replication process for each outgoing VLAN starts from the pointer 750 until an entry having an asserted control bit specifies the termination of the replication for the frame, column 14, lines 37-43).

Wong teaches the limitations of the claims including multicast packet duplicating system. But, Wong fails to specifically teach plurality of output ports, hashing function and continuous range that includes starting/ending indicators.

However, Tang et al. teaches Fig. 2, multicast packet generated and routed to RCVs 204-210 by way of router 250, column 8, lines 64-65; each multicast entry accessed by IP source address, IP destination address and the VLAN ID are hashed using a hash algorithm, column 12, lines 59-62), and replication process for each outgoing VLAN starts from the pointer 750 (starting indicator) until an entry having an asserted control bit (ending indicator) specifies the termination of the replication for the frame, column 14, lines 37-43.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Tang et al.'s plurality of output ports, hashing function and continuous range that includes a starting/ending indicators because this would have allowed the switch to forward the routed multicast packet/frames to the RCVs 206-210 coupled to its ports, column 9, lines 9-11.

Regarding Claim 11, Wong discloses a method (IPMC Replication steps, page STN-13) of controlling a duplication of a multicast packet (Internet Protocol Multicast (IPMC) packet duplication covers tables required to implement the MMU and egress module, page 3, lines 2-4) containing at least multicast address data (multicast packet is replaced with source MAC address, page 3, lines 14-15), comprising:

receiving the packet (Block Diagram, CPI ingress bus, page STN-2);

performing a hashing function (each multicast entry accessed by IP source address, IP destination address and the VLAN ID are hashed using a hash algorithm, column 12, lines 59-62) on said multicast address data;

using the results of said hashing function as an index (where the multicast entry accesses an appropriate entry of the table using the destination address and the VLAN ID, columns 12-13, lines 66-67 and 1-2 respectively) for a linked-list table (ECMP Support, L3 table, page STN-7);

said linked-list table including a plurality of pointers (Head_Pointer and the Next_Pointer used as index to the LS table, step 5, STN-13);

accessing a first multicast descriptor pointer (ECMP Dest_Ip Search, LPM table 1st-searchkey=lpm_addr [14:0] = {11 'h0, ip0, step 3, page STN-8} in said linked-list table;

said multicast descriptor pointer pointing to multicast descriptors comprised of at least multicast Virtual Area Network (VLAN) pointers (ECMP Dest_Ip Search, step 10, VLAN_tag, page STN-8);

using at least one of said multicast VLAN pointers to access a multicast VLAN table (ECMP Dest_Ip Search, step 10, L3 Interface Table, page STN-8) comprised of a second pointers to VLAN pointer descriptors (ECMP Dest_Ip Search, Next-searchkey = lpm_addr [14:0] = {next_ pointer,lpn), step 5, page STN-8);

accessing a VLAN pointer descriptor (ECMP Dest_Ip Seatch, step 10, VLAN_tag, page STN-8) in response to the second pointer; and using information contained in said VLAN pointer descriptor to control applying an encoding for the duplication of the packet (replication engine includes the pointer and index where the index (descriptor) enables the replication engine to perform multicast packet replication, column 14, lines 4-10);

wherein applying the encoding includes selecting a format of descriptors, the format including at least one of:

a contiguous range encoding that includes a starting indicator and an ending indicator (replication process for each outgoing VLAN starts from the pointer 750 (starting indicator) until an entry having an asserted control bit (ending indicator) specifies the termination of the replication for the frame, column 14, lines 37-43); or

a non-contiguous range encoding that includes a most significant bit (MSB) portion of an indicator and a bitmap decoded from a least significant bit (LSB) portion of the indicator;

and

a discrete encoding that includes a first indicator and a second indicator,

wherein: the encoding format is configured to be selected in response to control bits (an entry having an asserted control bit specifies the termination of the replication for the frame, then the replication process for each VLAN starts from the pointer 750, column 14, lines 37-43).

Wong teaches the limitations of the claims including multicast packet duplicating system. But, Wong fails to specifically teach plurality of output ports, hashing function and continuous range that includes starting/ending indicators.

However, Tang et al. teaches Fig. 2, multicast packet generated and routed to RCVs 204-210 by way of router 250, column 8, lines 64-65; each multicast entry accessed by IP source address, IP destination address and the VLAN ID are hashed using a hash algorithm, column 12, lines 59-62), and replication process for each outgoing VLAN starts from the pointer 750 (starting indicator) until an entry having an asserted control bit (ending indicator) specifies the termination of the replication for the frame, column 14, lines 37-43.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Tang et al.'s plurality of output ports, hashing function and continuous range that includes a starting/ending indicators because this would have allowed the switch to forward the routed multicast packet/frames to the RCVs 206-210 coupled to its ports, column 9, lines 9-11.

Regarding claims 21 and 25 Wong discloses a multicast packet duplication system for multicast packets (Internet Protocol Multicast (IPMC) packet duplication covers tables required

to implement the MMU and egress module, page 3, lines 2-4) containing at least multicast address data (multicast packet is replaced with source MAC address, page 3, lines 14-15), comprising:

an input port (Block Diagram, CPI ingress bus, page STN-2) configured to receive a packet (IPMC packet, page 5, line 21); and

a plurality of output ports (Block Diagram, CPE egress bus, page STN-2) configured to output the packet; said output ports being coupled to one or more Virtual Local Area Networks (VLAN) (VLAN) (IPM packet replication per VLAN, page STN-10, line 8);

wherein said system applies a hashing function (each multicast entry accessed by IP source address, IP destination address and the VLAN ID are hashed using a hash algorithm, column 12, lines 59-62) to the multicast address data of said multicast packets; and

wherein said system uses the result of said hashing function as an index (where the multicast entry accesses an appropriate entry of the table using the destination address and the VLAN ID, columns 12-13, lines 66-67 and 1-2 respectively) to a linked- list table (ECMP Support, L3 table, page STN-7); said linked-list table having entries that comprise either multicast descriptors or pointers (Head_Pointer and the Next_Pointer used as index to the LS table, step 5, STN-13) to multicast descriptors;

said multicast descriptors being comprised of at least multicast VLAN descriptors or pointers (ECMP Dest_Ip Search, step 10, VLAN_tag, page STN-8) to multicast VLAN descriptors;

wherein a number of distributions of said multicast packet and an output port distribution of said multicast packet is controlled by information stored in either the multicast descriptors or multicast VLAN descriptors (replication engine includes the pointer and index where the index

(descriptor) enables the replication engine to perform multicast packet replication, further specifies the port with the incoming (ingress) VLAN and rewrites the frame destined to ports on the VLAN (output ports) other than the ingress VLAN, column 14, lines 4-15);

wherein said multicast VLAN descriptors contain a plurality of entries (column of 8 entries in the L3 table, ECMP Dest_Ip Search, step 7, page STN-8) each describing the multicast packet distribution to a different VLAN (VLANs, page 3, lines 6-7); and

wherein an encoding format (replication for the frame, column 14, lines 42-43) said VLAN descriptors include at least one of:

a contiguous range encoding that includes a starting VLAN indicator and an ending VLAN indicator (replication process for each outgoing VLAN starts from the pointer 750 (starting indicator) until an entry having an asserted control bit (ending indicator) specifies the termination of the replication for the frame, column 14, lines 37-43); or

a non-contiguous range encoding that includes a most significant bit (MSB) portion of a VLAN indicator and a bitmap decoded from a least significant bit (LSB) portion of the VLAN indicator; and

a discrete encoding that includes a first VLAN indicator and a second VLAN indicator, wherein: the encoding format is configured to be selected in response to control bits (an entry having an asserted control bit specifies the termination of the replication for the frame, then the replication process for each VLAN starts from the pointer 750, column 14, lines 37-43).

Wong teaches the limitations of the claims including multicast packet duplicating system. But, Wong fails to specifically teach plurality of output ports, hashing function and continuous range that includes starting/ending indicators.

However, Tang et al. teaches Fig. 2, multicast packet generated and routed to RCVs 204-210 by way of router 250, column 8, lines 64-65; each multicast entry accessed by IP source address, IP destination address and the VLAN ID are hashed using a hash algorithm, column 12, lines 59-62), and replication process for each outgoing VLAN starts from the pointer 750 (starting indicator) until an entry having an asserted control bit (ending indicator) specifies the termination of the replication for the frame, column 14, lines 37-43.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Tang et al.'s plurality of output ports, hashing function and continuous range that includes a starting/ending indicators because this would have allowed the switch to forward the routed multicast packet/frames to the RCVs 206-210 coupled to its ports, column 9, lines 9-11.

Regarding Claim 23, Wong discloses the packet duplication system of claim 21, wherein said multicast descriptors also include a multicast packet time to live field (packet aging based on packet time stamp, page STN-49, line 16).

Regarding Claim 24, Wong discloses the packet duplication system of claim 21, wherein said multicast Virtual Local Area Network (VLAN) descriptors contain a plurality of entries (column

of 8 entries in the L3 table, ECMP Dest_Ip Search, step 7, page STN-8) each describing the multicast packet distribution to a different VLAN (VLANs, page 3, lines 6-7).

Regarding Claim 26, Wong discloses a method (IPMC Replication steps, page STN-13) of controlling a duplication of one or more multicast packets (Internet Protocol Multicast (IPMC) packet duplication covers tables required to implement the MMU and egress module, page 3, lines 2-4) containing at least multicast address data (multicast packet is replaced with source MAC address, page 3, lines 14-15), comprising:

receiving (Block Diagram, CPI ingress bus, page STN-2) the multicast packet;

applying a hashing function (each multicast entry accessed by IP source address, IP destination address and the VLAN ID are hashed using a hash algorithm, column 12, lines 59-62) to the multicast address data of said multicast packets;

using the result of the hashing function as an index (ECMP Support, L3 interface index, page STN-7) to a linked-list table (ECMP Support, L3 table, page STN-7);

retrieving a multicast descriptor (Head_Pointer and the Next_Pointer used as index to the LS table, step 5, STN-13) from said linked-list table;

using said multicast descriptor to find the multicast packet time to live data (packet aging based on packet time stamp, page STN-49, line 16) and a Virtual Local Area Network (VLAN) descriptor (ECMP Dest_Ip Search, step 10, VLAN_tag, page STN-8)

obtaining information regarding how said multicast packets should be distributed to various output ports to at least one VLAN from said VLAN descriptor; and

using this distribution information to distribute said multicast packets to said at least one VLAN (replication engine includes the pointer and index where the index (descriptor) enables the replication engine to perform multicast packet replication, further specifies the port with the incoming (ingress) VLAN and rewrites the frame destined to ports on the VLAN (output ports) other than the ingress VLAN, column 14, lines 4-15);

wherein an encoding format (replication for the frame, column 14, lines 42-43) of said VLAN descriptors include at least one of:

a contiguous range encoding that includes a starting VLAN indicator and an ending VLAN indicator (replication process for each outgoing VLAN starts from the pointer 750 (starting indicator) until an entry having an asserted control bit (ending indicator) specifies the termination of the replication for the frame, column 14, lines 37-43); or

a non-contiguous range encoding that includes a most significant bit (MSB) portion of a VLAN indicator and a bitmap decoded from a least significant bit (LSB) portion of the VLAN indicator; and

a discrete encoding that includes a first VLAN indicator and a second VLAN indicator, wherein: the encoding format is configured to be selected in response to control bits (an entry having an asserted control bit specifies the termination of the replication for the frame, then the replication process for each VLAN starts from the pointer 750, column 14, lines 37-43).

Wong teaches the limitations of the claims including multicast packet duplicating system.

But, Wong fails to specifically teach plurality of output ports, hashing function and continuous range that includes starting/ending indicators.

However, Tang et al. teaches Fig. 2, multicast packet generated and routed to RCVs 204-210 by way of router 250, column 8, lines 64-65; each multicast entry accessed by IP source address, IP destination address and the VLAN ID are hashed using a hash algorithm, column 12, lines 59-62), and replication process for each outgoing VLAN starts from the pointer 750 (starting indicator) until an entry having an asserted control bit (ending indicator) specifies the termination of the replication for the frame, column 14, lines 37-43.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Tang et al.'s plurality of output ports, hashing function and continuous range that includes a starting/ending indicators because this would have allowed the switch to forward the routed multicast packet/frames to the RCVs 206-210 coupled to its ports, column 9, lines 9-11.

Regarding Claim 27, Wong discloses the packet duplication system of claim 1, wherein a first descriptor in the linked-list table includes a first link to a second descriptor in the linked-list table.

Wong teaches the limitation of the claim including packet duplicating system.

But, Wong fails to specifically teach first descriptor to second descriptor in the table.

However, Tang et al. teaches Fig. 3, the port index becomes the destination index in the table, column 9, lines 64-65.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Tang et al.'s first descriptor to second descriptor in the table

because this would have allowed the port index to become the destination index when there was a hit in the table which responds to the select signals over the switching bus, columns 9 and 10, lines 64-67 and line 1 respectively.

Regarding Claim 28, Wong discloses the packet duplication system of claim 27, wherein the second descriptor in the linked-list table includes a second link to a third descriptor in the linked-list table.

Wong teaches the limitation of the claim including packet duplicating system.

But, Wong fails to specifically teach second descriptor to third descriptor in the table.

However, Tang et al. teaches Fig. 3, the destination index is then used to reference an index entry 352 in the table, column 9, lines 65-66.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Tang et al.'s second descriptor to third descriptor in the table because this would have allowed the destination index to reference the index entry when there was a hit in the table which responds to the select signals over the switching bus, columns 9 and 10, lines 64-67 and line 1 respectively.

Regarding Claim 29, Wong discloses the packet duplication system of claim 5, wherein each of the plurality of entries includes a pointer descriptor which includes a plurality of linked-list pointers corresponding to the plurality of output ports.

Wong teaches the limitation of the claim including packet duplicating system.

But, Wong fails to specifically teach plurality of entries include descriptor with pointer to port.

However, Tang et al. teaches plurality of entries each of which is accessed by VLAN ID (pointer) and further includes index field containing port index value, column 9, lines 60-64.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Tang et al.'s plurality of entries include descriptor with pointer to port because this would have allowed the port index to become the which responds with the port select signals indicating which ports to receive the fame, columns 9 and 10, lines 64-67 and 1-2 respectively.

Citation of Pertinent Prior Art

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dobbins et al. (Patent Number: 5,684,800) discloses method for establishing restricted broadcast groups in a switched network.

Jain et al. (Patent Number: US 6,614,787 B1) discloses system and method for efficiently handling multicast packets by aggregating VLAN context.

Williams (Patent No.: US 6,775,283 B1) discloses passing VLAN information through descriptors.

Kaniz et al. (Patent No.: US 6,963,566 B1) discloses multiple address lookup engines running in parallel in a switch for a packet-switched network.

Boura et al. (Pub. No.: US 2002/0110139 A1) discloses logical multicast packet handling.

Wang (Patent No.: US 7,397,809 B2) discloses scheduling methods for combined unicast and multicast queuing.

Bender et al. (Pub. No.: US 2005/0080869 A1) discloses transferring message packets from a first node to a plurality of nodes in broadcast fashion via direct memory to memory transfer.

Response to Arguments

3. Applicant's arguments filed January 15, 2009 have been considered. But, in view of the new grounds of rejections resulting from the amended claims, the newly added claims, and the examiner maintaining the prosecution of the claims, the arguments are moot.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Andrews whose telephone number is (571) 270-1801. The examiner can normally be reached on Monday through Friday 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rao S. Seema can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin C. Harper/

Primary Examiner, Art Unit 2416

LA/la
April 13, 2009